ABSTRACT OF THE DISCLOSURE

In a frequency synthesizer, a voltage controlled oscillator has a terminal and oscillates a signal whose frequency corresponds to a control signal applied to the terminal. A first frequency divider divides the frequency of the signal outputted from the voltage controlled oscillator so as to output a first frequency-divided signal. The first frequency-divided signal has a divided frequency. A comparator compares a phase of the first frequency-divided signal with that of a reference signal so as to output a difference signal representing a difference between the phase of the first frequency-divided signal and that of the reference signal. A loop filter smoothes the difference signal outputted from the comparator so as to output the smoothed signal as the control signal to the terminal of the voltage controlled oscillator. A frequency division unit divides the frequency of the signal outputted from the voltage control oscillator so as to output a second frequency-divided signal. The second frequency-divided signal has a divided frequency. A mixer unit mixes the second frequency-divided signal outputted from the frequency division unit and the signal outputted from the voltage control oscillator so as to output a mixed signal.